DELAWARE STATE MEDICAL JOURNAL

Issued Monthly Under the Supervision of the Publication Committee
Owned and Published by the Medical Society of Delaware

VOLUME 15
NUMBER 1

JANUARY, 1943

Per Year $2.00
Per Copy 20c

FIRST AID IN CHEMICAL WARFARE.*

RICHMOND C. HOLCOMB, M. D.,**
Upper Darby, Pa.

Is there a likelihood that a chemical warfare will be launched against the civilian population of America? No one can answer this question. The hazards and surprises of war are many. Since the time of the caveman, man has taken any means within his power to destroy his enemies. Such is the trend of pitiless warfare today. Therefore, as medical men, we are bound to consider not only the devastating effects of high explosives in mechanized warfare, but also the possible introduction of acute epidemical diseases, viruses, chemicals; and in short, any measures that might be adopted to destroy us and against which no peace-time treaty is an effective deterrent. The Office of Civilian Defense has included protection against gas as a necessary measure of defense, as has likewise Great Britain.

The first agent to be employed in modern chemical warfare was chlorine gas. As a surprise agent, its effect was devastating when first used against the French, Canadians, Russians, and Italians by the German Army. This gas was a lung irritant. After the invention of an effective gas mask this agent, as well as others of this nature subsequently introduced, lost much of its surprise and harrassing qualities, and as a casualty agent, lost much of its effect and importance. Now it became necessary to circumvent the lung protection, and, two years later, an agent for this purpose was introduced as the blister gas or vesicant which has been named "mustard gas". From this point on, after this vesicant called mustard gas lost some of its surprise value, neutralizing agents being devised for decontamination to outwit its persistency, gases of the nature of systemic poisons were sought. It was at about this stage of development in chemical warfare during World War I, that lewisite, a chemical of this character was prepared for use by the United States, though it was never used against the enemy. The Germans had, however, developed an arsenic gas, which was expected to possess very poisonous properties, and which it would appear when used was a disappointment to them. Among about 3,000 agents investigated for use in chemical warfare about 30 were found acceptable for use in the field, and there were others worthy of further study. Our knowledge of the use of chemical warfare agents is based largely upon experience during World War I, and it is to the records of this war that we turn for the experience in the use of these gases.

CHEMICALS VS. HIGH EXPLOSIVES AS CASUALTY AGENTS

As casualty agents, the experience to date shows that chemical agents rank far below the modern use of high explosives. During World War I, the mortality among those wounded by enemy action varied between 20 to 28 per cent. Figures for casualties among the military forces in the present war are not yet available to us, but among the undisciplined civilian population the mortality rate for this comparison is now much higher, being about 45 per cent in Spain, 41 per cent in the early raids on England, and 71 per cent for the surprise attack upon Pearl Harbor. Thus it would appear that with the changes in warfare there is also a change in the volume and character of the casualties, these being in general more numerous, severe and massive. This same thing may happen when new agents and new methods of using them are introduced in chemical warfare.

As a casualty agent, the following table would indicate the past mortality among those gassed to be five or more times less in chemical warfare than the mortality from wounds in action as cited above.

* Read before the Medical Society of Delaware, Dover, October 13, 1942.

** Captain, Medical Corps, U. S. Navy, Ret.

Table I. Gas Casualties, World War I.

Country	Total Casualties	Killed or Died in Hospital	Mortality
France	190,000	8,000	4.2
Great Britain	180,981	6,080	3.35
Germany, 1918 only	78,000	1,755	3.00
U.S. Army, Hosp.	70,552	1,399	1.73
U.S. Marines	1,517	50	3.2

NOTE: When U. S. entered the war more than one-fourth of German artillery ammunition was gas ammunition (Curt Wachtel).

MORTALITY EXPERIENCE WITH DIFFERENT GAS AGENTS

The American forces entered the World War I after a degree of protection had been devised, which is now available to us. Among these forces, mustard gas had the greatest mortality, for this agent, without the protection of the gas mask would be a lung irritant as well as a skin vesicant. Phosgene, as might be expected, as it is seven times as toxic as chlorine, had the highest mortality among the recognized lung irritants. The mortality among 70,552 casualties among the American forces reaching the hospitals is shown in the following table. It must be stated, however, that in action when all the agents of warfare are in use, such a table might need some corrections, but there is enough delayed action in the usual field concentrations of gases to make this table informative.

Table 2. Gas Casualties, U. S. Army

Kind	Admissions	Deaths	Mortality
Mustard	27,711	599	2.16
Not given	33,587	546	1.63
Phosgene	6,834	66	0.97
Arsine	511	3	0.52
Chlorine	1,843	7	0.38
Total	70,552	1,221	1.73

(Medical Department, U. S. Army World War, Vol. xiv.)

CLASSIFICATION OF CHEMICAL AGENTS

Chlorine, the first gas to be employed in this type of warfare, in its common physical state is a true gas; consequently, this type of warfare is often referred to as gas warfare, for to be effective the agent must be in suspension in the atmosphere which of course is usually thought of as being in a gaseous state. These agents are not all gases, and may be classified as to their physical state under usual conditions as gases, such as chlorine and phosgene; as liquids, such as mustard gas and lewisite; and as solids, such as tear gas and adamsite. Some of them are identified by a peculiar odor which is described as like garlic, horseradish, mustard, geranium, flypaper, anise, ensilage, musty hay, green corn, apple blossoms, sour fruit, stove polish, matches, acrid, pungent, etc., all of which, in the abstract, is very confusing, so that sniff sets have been devised to teach a familiarity, by practice, with the odor of a few of the more important gases. As gases are frequently mixed, identification by odor alone is not always sure when taken by itself, but is very helpful when considered with other factors such as the persistency and the immediate physiological effect.

Persistency. A very important consideration is the persistency of the liquid, vapor or gas in dangerous concentration. For instance, it is well known if we were to take a liquid with a high boiling point like ether, which boils at blood temperature, and also a volatile oil like the oil of cloves, the ether would go into suspension in the atmosphere much faster than the volatile oil, the odor of which would persist for a longer time. In general the vesicants are the most persistent. Mustard gas may persist for one day or one week, and even longer in cold weather, for the freezing point of this liquid, depending on its impurities, varies from 46°F. to 50°F. Of the lung irritants, chlorpicrin is the most persistent, and may last for six hours in the open, and double this time in the woods. As for the other lung irritants such as chlorine, phosgene and diphosgene, in ordinary field concentrations their persistence is not rated at over 10 to 30 minutes. The effect of all gases depends upon their concentration, and those favorable weather conditions which would not hastily disperse them. In field concentrations, where the total volume is not influenced by such limitations as woods, low places, tunnels, etc., they may vary in a considerable degree, but as all gases utilized are heavier than the atmosphere, they will flow into and accumulate in greatest concentration in low places.

Physiological classification. When grouping these agents as to their physiological action, it should be remembered that such a

classification is based only on the most pronounced effects. They are suspended locally in the atmosphere which we breathe, thus practically all of them are in some degree lung or respiratory irritants. Some, like chlorpicrin, irritate the eyes and cause the tears to flow, but are not classified as tear gases, as they cause other more serious injury. Both mustard and lewisite are deadly to breathe, but they also injure any part of the body they contact, including the outer or skin surface, which causes them to be classified as blistering agents or vesicants.

Immediate effect. The Medical Division of the Office of Civilian Defense considers twenty agents in connection with first aid, and these agents are subdivided into seven classes, namely: (a) lung irritants, (b) blister gases, (c) tear gases, (d) irritant smokes, (e) incendiaries, (f) screening smokes, and (g) systemic poisons. When used unmixed they may be recognized in part by their odor and their immediate physiological effect. Some, like chlorpicrin, may cause lacrimation in low concentrations, noticeable even before the odor will be detected. Others, like the lung irritant phosgene, and the vesicant mustard gas, may be delayed in their serious symp-

Table 3. Classification, Odor and Immediate Effect.

Physiological classification	Chemical Warfare Symbol	Odor	Other Immediate Effects
LUNG IRRITANTS			
Phosgene	CG	Silage; fresh-cut hay	Coughing; tightness in chest; eye irritation
Chlorpicrin	PS	Sweetish; flypaper	Tears; nose and throat irritation; vomiting
Chlorine	CL	Disagreeable; like bleaching powder	Choking; coughing; pain in the chest; smarting eyes
Nitric fumes		Pungent	Coughing; brown stain
BLISTER CASES (Vesicants)			
Mustard	HS	Garlic; horseradish	None
Lewisite	M-1	Geraniums	Smarting skin; burning eyes
Ethyldichlorarsine	ED	Biting	Nasal irritation
TEAR GASES			
Chloracetophenone (also solution)	CN	Locust or apple blossoms; fruity	Flow of tears; irritation of skin
CNB solution	Tire patching cement		Flow of tears
Brombenzylcyanide	CA	Sour fruit	Flow of tears; nasal irritation
IRRITANT SMOKES			
Adamsite	DM	None	Headache; vomiting
Diphenylchlorarsine	DA	None	Sneezing; vomiting; headache
INCENDIARIES			
White phosphorus	WP	Matches	Burns; glow from particles (also used as screening smoke)
SCREENING SMOKES			
HC Mixture	HC	Acrid	Slight suffocating feeling
Sulfur trioxide in chlorsulphonic acid	FS	Acrid (strong)	Prickly sensation on the skin; eye irritation
Titanium tetrachloride	FM	Acrid (mild)	Slight eye irritation
SYSTEMIC POISONS			
Hydrocyanic acid		Bitter almonds	Headache; dizziness; collapse
Arsine		Garlic; metallic taste	None
Hydrogen sulfide		Rotten eggs	Headache; dizziness; collapse
Carbon monoxide		None	Headache; collapse

toms, and from the medical standpoint these two groups of gases are very important. All factors, such as odor, delay in action, persistency, immediate physiological action, and smoke particles, are useful in identifying the gas.

The twenty agents mentioned above are thus classified.

LUNG IRRITANTS

A lung irritant was the first gas to be used, April, 1915, by the Germans. This agent, chlorine, a true gas, was first employed by spraying the compressed gas from cylinders, under favorable wind and weather conditions, the presence of light airs to waft the gas toward the enemy. The unprepared state of the French, British, Russians and Italians, when it was first used, led to results far beyond those which occured later when protection against them was devised. Shortly afterwards other lung irritants such as phosgene, diphosgene, and chlorpicrin came into use, either alone or in mixture. The method of spraying from cylinders into a wind of favorable direction and velocity, was soon improved by the use of other means, such as by firing the agent in explosive projectiles, by mortar bombs, and by mining, etc. The more modern use of these agents will be by airplane, which can carry the agent far beyond the range of the projectile from the largest gun, and in a quantity, not only as a bomb, but it can also be sprayed from tanks of large size.

The following table will illustrate the results which followed the use of these gases:

Table 4. German Use of Lung Irritants

Gas	Date	Casualties	Killed	Against
Chlorine	April 15, 1915	15,000	5,000	French
Chlorine	May 31, 1915	15,000	6,000	Russians
Chlorine & Phosgene	Oct. 19-20, 1915	4,281	815	French
Chlorine & Phosgene	Dec. 12, 1915	1,069	120	British
Chlorine & Phosgene	Feb. 21, 1916	1,006	283	French
Chlorine & Phosgene	Apr. 30, 1916	512	89	British

NOTE: By 1918, gas mask protection was so good that in 14 gas attacks made the first 5 months, in 7 there were no deaths, and the number of casualties in the others varied from 7 to 78.

Delay in action. With all lung irritants there is a latent period before the serious symptoms appear in the lungs, varying in time from 1 to 12 hours from the exposure, after which period symptoms of pulmonary edema develope with a dramatic suddenness. In general the latency of their action is indicated as follows:

Phosgene, Diphosgene, Nitric Fumes
1. Delay in action.
2. Not noticably irritating when breathed.
3. Reaches deeply into the lungs in concentration.

Chlorine, Chlorpierin
1. Action more prompt.
2. Quickly affects eyes and nasal passages.

The physical signs at first may be scanty, or not detected, and though phosgene is much more toxic than chlorine, the latent stage, as indicated above, is more prolonged. Within the lungs themselves a pulmonary edema is slowly developing. Two clinical types or stages are described, the blue and the gray stage.

Blue type. In addition to general symptoms such as an increased respiratory rate, cough with perhaps even blood-streaked expectoration, a deep cyanosis with engorgment of the veins of the neck occurs. This aspect is called the blue stage. As a result of increasing exudation in the alveoli, with some degree of anoxemia, blood is dammed back to the right side of the heart, which at autopsy is frequently found dilated. Morphine or other respiratory depressant should not be used, nor any measures of exertion, including artificial respiration. The best results during this congestive stage is venesection, to relieve the strain on the right side of the heart, and which measure proves satisfactory to the doctor and the patient alike. In this condition there is an increase in the viscosity of the blood, which may make direct incision into the vein necessary.

Grey type. The other type or stage is sometimes called the gray stage of asphyxia. The face in this stage assumes an ashen hue, the neck veins collapse, and the blood pressure drops. Now the increasing edema, and lung changes lessen the oxygen absorption by the capillaries, which leads to anoxemia, in-

creased viscosity of the blood with thrombosis, and general symptoms resembling shock. Venesection is not indicated in this stage. Cardiac stimulants such as digitalis, caffine, and coramine have been found of little value, and reliance is placed more upon oxygen inhalation to relieve the anoxemia of the laboring heart muscle resulting from the oxygen starvation and other causes.

Most deaths occur during the first 24 hours. The most frequent of the sequelae is bronchopneumonia. Bronchitis and bronchiectasis may result from chlorine and phosgene poisoning. Chlorpicrin irritates not only the alveoli, but also the trachea and the upper bronchi and bronchioles. As a result, exudative plugging from this gas may cause scattered areas of pulmonary emphysema in the lungs.

VESICANTS

Mustard gas, the first vesicant to be used, was employed by the Germans against the British in July, 1917, and its use was continued throughout the rest of the war. The vesicants in general are heavy liquids or an invisible vapor. As such they will permeate materials of a porous character, rendering them dangerous to touch until decontaminated. Because of this permeability first aid must be prompt, for they can permeate the clothing as well as the exposed skin. The agent in the form of liquid splashes or invisible spray of droplets represents a high concentration which "soaks" into the skin as ink on blotting paper. First aid measures should not be delayed beyond five minutes if on the skin, or beyond ten minutes if on the clothing. Prompt measures for decontamination may be considered in terms of the use of (a) neutralizers, (b) solvents, (c) detergents. Later treatment of the (d) resulting burn, and (e) the effect of the systemic poison must also be considered.

The following table compiled from German figures of 71 mustard gas attacks directed against the British, represents very well the claims of this gas as a casualty agent. It is obvious that as its use continued the mortality diminished even if it was the most destructive and harassing gas measure of the war.

Table 5. German Use of Vesicants

(Selected from German figures of 71 Mustard gas attacks on British)

Gas	Date	Casualties	Killed	Against
Mustard	July 21, 1917	2,934	101	British
Mustard	July 28, 1917	6,474	146	British
Mustard	Dec. 15, 1917	768	9	British
Mustard	Mar. 16, 1918	6,195	39	British
Mustard	Mar. 23, 1918	6,874	36	British
Mustard	April 13, 1918	6,940	20	British
Mustard	Aug. 31, 1918	6,265	54	British
(the above was the largest number killed since Oct. 1917)				
Mustard	Sept. 7, 1918	6,134	36	British
Mustard	Oct. 19, 1918	4,407	31	British
Mustard	Nov. 16, 1918	367	9	British

Neutralizing agents. The protective ointment of the Chemical Warfare Service, known as Protective Ointment MIV, is the ideal protective application and neutralizer, but this is not apt to be available for civilian use. Recent orders in England require the pharmacist to keep a handy bucket of bleach powder paste for emergency use outside his shop at all times. Bleach powder was used abroad in both the dry form and as a paste. In the dry form it generates heat when mixed with water, which should be avoided. It is useless if applied more than two hours after the exposure. The paste should never be allowed to remain on the skin longer than three or four hours, as it is itself an irritant and corrosive. Dichloramine-T, first used as a 5 per cent solution in oil, was found effective, as it liberates chlorine, and is less irritating than chloride of lime. The ideal method for cleansing the skin where it may be done promptly proved to be thorough cleansing with soap and water. Bleaching solutions of sodium hypochlorite, readily available in most household laundries, has been suggested where other preparations are not readily available in an emergency. For lewisite, the neutralizing agent recommended is hydrogen peroxide in 8 per cent solution. A 29-30 per cent solution is available commercially, but the U. S. P. solution usually sold in the drug stores is a 3 per cent solution, and this may be used where the stronger and more preferable strength is not available.

Solvents. Here again several handy liquids are recommended, such as non-leaded gasolene, alcohol, kerosene, and carbon tetrachloride (pyrene). Such agents must be used with care and applied with a cloth simply dampened, so the irritant will not be spread by the excess of the solvent. These are of

doubtful use if a neutralizing agent has been employed.

Detergents. Water is not a ready solvent of these agents, but with a soap detergent, it will mechanically remove them from the skin. Thorough cleansing with soap and water has been a very satisfactory measure. If possible, wash in running water and cleanse thoroughly. This should be done promptly and before the liquid soaks into the deep layers of the skin, and when applied promptly and thoroughly, it has proved a very efficacious measure. In England, according to a recent instruction issued the civilian population, the victim may demand soap and water at the nearest house. He ought then, if near his home, proceed there, discard all clothing, bathe, and dress in a fresh outfit.

Treatment of burns from vesicants, as well as the treatment for lung irritants other than the first aid, is not dealt with here and for these measures reference should be made to the list of publications appended. This also applies to the systemic poisoning occasioned by lewisite, which, in burns by this liquid on the skin, may require a very radical treatment, such as excision of the burned area.

FIRST AID PROCEDURE FOR CHEMICAL WARFARE AGENTS

For Mustard On Skin

1. Remove and discard all contaminated cloth ing.
2. Remove excess mustard on skin with cotton waste or cloth.
3. Apply protective ointment, MIV, and rub in for one minute.
4. Wash thoroughly with soap and water within ten (10) minutes or cleanse thoroughly with kerosene.
5. Use only soap and water if redness has appeared.

For Lewisite On Skin

1. Remove and discard all contaminated clothing.
2. Remove excess lewisite on skin.
3. Apply 3 per cent hydrogen peroxide (preferably 8 per cent) continuously for four or five minutes.
4. Wash thoroughly with soap and water.
5. Protective ointment MIV is applied, removed, and reapplied four or five times, if H_2O_2 is not available. It should be used within five minutes after exposure.

For Mustard In Eyes

1. Wash immediately with 2 per cent solution of sodium bicarbonate (baking soda) and continuously for five or ten minutes.
2. Evacuate to hospital.

For Lewisite In Eyes

1. 0.5 per cent hydrogen peroxide may be used for lewisite in the eyes, followed immediately by irrigations with 2 per cent sodium bicarbonate solution.
2. Evacuate to hospital.

For Lung Irritants-Chlorine, Phosgene and Chlorpicrin

1. Put at absolute rest in prone position.
2. Cover with blankets, overcoats or other material to keep patient warm.
3. Give warm drinks, such as tea, coffee, or cocoa.
4. Evacuate to hospital as litter case.

For Tear Gas—CN, CNS, CNB

1. Wash eyes with 2 per cent sodium bicarbonate solution if there is still irritation after coming out of the area.
2. Tear gas should be removed from skin by 4 per cent sodium sulphite in 50 per cent alcohol.

For Irritant Smokes—DM, DA

1. Remove clothing after getting out of area and take complete bath.
2. Give aspirin for headache.
3. Irrigate nose and throat with 2 per cent sodium bicarbonate solution.
4. If symptoms persist, evacuate to hospital.

White Phosphorus—WP

1. Remove particles from skin or clothing immediately.
2. Immerse in water or cover with 5 per cent copper sulphate solution.
3. Evacuate to hospital for removal of particles and treatment of burn.

AGENTS FOR FIRST AID FOR GAS CASUALTIES

	Unit	Amount
1. Cupric sulfate Used in 2 to 5 per cent solution for white phosphorous burns.	1 lb.	1 box
2. Sodium bicarbonate Used to make 2 per cent solution for lavage of eyes, nose and throat after exposure to HS or M-1.	1 lb.	1 box
3. Protective ointment MIV Used to protect exposed parts and for neutralization and removal of vesicants.	3 oz. tube	6
4. Dichloramine "T" 20 per cent solution in triacetin. Used for decontamination of mustard on skin.	pint	1
5. Soap, Army issue (a brown alkaline soap) Used for removing vesicant from the skin.	cake	2
6. Kerosene Solvent for removing liquid vesicants from skin in usual use.	pint	1
7. 4 per cent solution sodium sulphite in 50 per cent alcohol. Used in removing CN, CNB and CNS (tear gases) from the skin.	8 oz.	1
8. 4 per cent boric acid solution. Used for irrigating eyes.	4 oz.	1

9. Hydrogen peroxide 3 per cent (preferably 8 per cent) Used for first aid for lewisite on skin.	pints	4
10. Distilled water. Used for making up solutions for eye wash.	pints	3

Protection. Here we may consider protection of the individual, protection of a group of individuals, and protection of food and water.

The protection against the lung irritants is by gas mask. There are several types issued to the services, and they commonly consist of a filter to screen out smoke particles within a canister containing activated charcoal and soda lime. (see reference 5).

The *protection of the individual* against vesicants consists of especially treated underclothing, outer clothing, shoes, gloves, hoods etc. (ref. 5).

Group protection involves the selection of a room of known cubic capacity, sealed against the entrance of gas, to contain sufficient air content to support the required number of persons the required number of hours. If ventilation is provided, the air must be delivered only after passing through a large canister tank for decontamination. Food and water must also be protected against contamination (ref. 5).

Decontamination. There are two types of decontamination: first, squads concerned with the decontamination of material; and second, stations concerned with the decontamination of persons of both sexes.

Decontamination squads are not a part of the Emergency Medical Service and are not considered here.

Those concerned with personnel decontamination should be protected in their persons to the same extent as the squads concerned with the material decontamination. They are not sent to an incident, as are the former, but function at an especially planned station, provided with rooms for disrobing, rooms for decontamination of the person, provided with ample showers, and rooms for dressing. The scheme is elaborate, provides the above rooms in duplicate, one for each sex, together with water heaters of very large capacity, fresh clothing for both sexes etc. (ref. 4).

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HOSPITALS AND COMPULSORY HOSPITAL INSURANCE

"Every governmental energy must be concentrated on winning the war. Reforms or making America over cannot but dislocate the war effort." This statement by ex-President Hoover in his twelve points of vital interest to the Home Front is so axiomatic that it should delay additional social-security legislation until the war has been won. Regardless of its virtues or defects, legislation that will profoundly affect the postwar American way of life should be postponed for consideration with other peacetime readjustments. However, since bills of this type have already been submitted to Congress and since silence might be taken for assent or approval, discussion appears to be necessary.

Such a bill, "To amend and extend the provisions of the Social Security Act; to establish a federal social-insurance system; to extend the coverage of federal old-age and survivors' insurance; to provide insurance benefits for workers permanently and totally disabled; to establish a federal system of unemployment compensation and temporary disability benefits and a federal system of unemployment offices; to establish a federal system of hospitalization benefits; to amend the Internal Revenue Code; and for other purposes," has been introduced by Representative Thomas H. Eliot, of Massachusetts. Without consideration or comment on the other parts of the bill, the proposal "to establish a federal system of hospitalization benefits," or, in other words, "compulsory hospital insurance," as it is commonly called, deserves critical comment.

At the present time in the United States there is a widespread and rapidly growing system of voluntary hospital insurance known as the Blue Cross Plan. The basic philosophy

underlying such voluntary hospital insurance is radically different from that of compulsory hospital insurance, in spite of their aiming at the same objective.

Voluntary insurance, as its name implies, connotes a voluntary act on the part of the insured, as the result of consideration and decision. It requires thinking. Thus it exemplifies the essence of democracy. By thinking, choice and action the subscriber becomes a better citizen, and by the development of his will and initiative the community is benefitted and improved. It is a slow process, but sure.

Compulsory insurance, likewise, is self-descriptive for its means that all persons falling within its provisions shall, willy-nilly, comply with its regulations. There is no opportunity for choice or decision. Essentially it is taxation under another name. It is regimentation held to be justifiable by the claim that it is for the benefit of the insured, that it spreads the burden and that it forces the improvident to provide. Its proponents claim that it will achieve in one year what voluntary insurance would require many years to accomplish and that it would eliminate charity and so increase the self-respect of former recipients. They compare by analogy the anticipated benefits of compulsory hospital insurance to the good accomplished by the Workmen's Compensation acts, forgetting that in the latter case no voluntary plan was available.

Voluntary hospital insurance has been available for ten years. New and not understood, growth during the early years was slow. It has rapidly expanded during the last five years, and now over ten million people are insured under this plan. It is spreading rapidly. Reciprocity between plans is accepted in principle and practice. In collaboration with state and local medical societies, plans for the coverage of medical fees for hospital care are being developed, and in some states are already in operation. Since it operates within state boundaries, it is adaptable to local conditions. Since it is a nonprofit corporation, it is flexible and can adjust to new conditions without resort to legislation. Since it is subject to regulation by state commissions of insurance and welfare, its subscribers are protected from exploitation. Its cost of operation has been uniformly low.

There is no opposition on the part of the American Hospital Association or of most hospital administrators to the provision of better hospitals in rural areas, to the extension of hospital care for certain public-assistance categories, such as the aged, and even to the consideration of compulsory hospital insurance. But they believe that the resulting plan should be the product of collaboration and co-operation by the Social Security Board, hospital representatives, physicians and representatives of the charitable, labor and welfare organizations of the community and that this collaboration should take place at a time when adequate and contemplative consideration can be given to a problem so vitally affecting American life. The American Hospital Association is actively furthering the extension and liberalization of Blue Cross plans, an endeavor that can go on during the emergency without hampering the war effort, since the methods and machinery are already in operation.

Specific defects in the Eliot bill can be noted as follows:

The proposed federalization scraps the present relation provided by the Social Security Act between the states and the federal government.

The United States is too large and too varied to be adequately legislated for on a matter so vitally influenced by local conditions. States can give better adjustment and control, according to local needs.

The bill requires the setting up of a new bureau for administration and operation at a time when the manpower of the nation is already overextended, and with the certainty of added cost.

Nothing in the bill remedies the lack of medical care and hospital facilities in rural areas. In fact, the bill expressly prohibits the use of money for this purpose.

The bill does not adequately separate administration and payments for hospitalization and disability benefits. The experiences of European plans point to the necessity of this separation.

The bill as drawn gives no consideration to the necessity of preserving voluntary plans. The present hospital system is based on the co-operation of voluntary and governmental hospitals, which supplement each other in caring for all classes of the community. If compulsory insurance is instituted, certainly a similar co-operation should be provided for with voluntary insurance. Otherwise it will probably mean the gradual destruction of philanthropy, for local interest will be difficult to sustain if the federal government assumes leadership and responsibility. Local morale suffers under remote control, and there would be no incentive for experimentation in different localities to meet varying conditions.

There is no consideration of medical-care fees, a program that is now going forward under the leadership of the voluntary plans.

The problem boils down, finally, to an evaluation of the moral values inherent in voluntary plans contrasted with the expected material values of compulsory plans. It is essentially individualism versus regimentation. Further consideration of such social readjustments should not be undertaken during the stress of war conditions, but should be put off for consideration after the war is won. Probably a satisfactory compromise between the two extremes can then be obtained.—Editorial, *N. Eng. J. M.*, Dec. 17, 1942.

WAR AND SOCIAL REFORM, II*

"Society is an organism subject to all the laws of evolution," said Dr. G. W. Cottis,[1] President of the Medical Society of the State of New York, "and medicine is an organ of vital importance in that organism. There is of necessity a constant interrelationship between the two, and we cannot appraise our situation apart from that of society as a whole." For this reason, we are convinced that at this time editorial emphasis upon social, economic, and political proposals for change is imperative. We have had so much scientific and technical progress in medicine and other fields in so short a time that the great problem now is how to use it in the most efficient and equitable manner. It is by no means a simple problem or one which lends itself readily to scientific analysis, for it involves people, their ideas, their wants, their laws, their industry and agriculture, as well as their ills, and their aspirations.

"Where there is no vision, the people perish," says the Old Testament.[2] At present, human beings aspire to security, personal and social, economic and otherwise. Well, human beings have always done that, and have, in addition, gone a long way on the road to its attainment.

"Under the smoke and fire of battles we might see all the people of the earth," continues Dr. Cottis, "moving like a tidal wave in one direction. That direction is toward a new form of society in which independence is replaced by dependence, and freedom traded for security. The leaders who promise these are the ones the people follow. The security they seek and demand is security against want, hardship, and illness. That is the negative way of saying that they demand assurance of shelter, food, clothing, recreation, and medical care without much regard to their ability to earn them."[1]

The "Beveridge Report" seems, on examination, not to be quite the "revolutionary" document which was anticipated.[3] At Oxford Town Hall, its author is reported to have said on December 6, in part:

"If we have mass unemployment we may not be able to carry out the proposals of my report. . . . I simply won't believe it is impossible to abolish mass unemployment, yet I do not know how it is to be done and do not even know whether anyone else does."

Fair enough; neither do we.

"The Australian Labor Government's plan for social security after the war is similar to Sir William Beveridge's, but is much more comprehensive. It is estimated it will cost £50,000,000 to £60,000,000 yearly, according to the range of benefits finally included, and will provide maternity allowance, child endowment, widows' pensions, health and unemployment insurance, free hospital and medical services irrespective of income, old-age pensions without a means test much larger than those now paid, and a living allowance on a family basis probably equal to the present basic wage of about £4 10s. weekly during unemployment.

"A government spokesman said the aim would be to provide security from the cradle to the grave.

"The health plan will involve the zoning of Australia into medical districts and the employment of 2,000 doctors and thousands of nurses and salaried staffs of hospitals and health centers. It is suggested that doctors demobilized from the fighting forces might be absorbed into this scheme.

"The Commonwealth may take over public hospitals, now a responsibility of the States. Doctors' salaries would range from £800 for junior general practitioners to £1,650 for senior physicians and surgeons. There would be more than 450 new one-man health centers throughout the Commonwealth.

"Cities also would be zoned, Sydney having thirty-five health centers; Melbourne, 25. Infant health centers and convalescent and rest centers would also form part of the scheme."[4]

Just how all this is to be accomplished in face of the mass unemployment which, if history repeats itself, is to be anticipated after the war we haven't an idea.

We do know that here in the state of New York,[5] the public medical-care program laid down by practical, hard-headed representatives of the Medical Society of the State of

* This is the second editorial of a series.

New York and the State Department of Social Welfare* in some respects right now goes farther than the projected medical service plans of either Sir William Beveridge or the Australian Labor Government. To quote Lee C. Dowling, Deputy Commissioner for Public Assistance of the State Department of Social Welfare, in part: "That this was done without regimented socialization of private medicine, without injury to the doctor-patient relationship, without adversely affecting the economics of private practice—and with a measurable improvement in the quality, quantity, and efficiency of medical services—is a singular achievement. . . . Further, ... this plan comprises a partnership of government and the medical profession functioning cooperatively in the interests of the public health and welfare. . . ."

Medical care[6] is construed to include necessary preventive, diagnostic, corrective, and curative services, and supplies essential thereto, provided by qualified medical and related personnel for conditions in a person that cause acute suffering, endanger life, result in illnes or infirmity, interfere with his capacity for normal activities, or threaten some significant handicap. In the provision of such medical care, full and proper use shall be made of existing public and private medical and health services and facilities.

The medical care plan provides for (*a*) local medical direction and administration for a clearly defined local program, (*b*) medical and social coordination, with suitable medical and fiscal record-keeping, and (*c*) integration with community medical and health resources. The pattern for providing the items of medical care listed below may include any combination of the following:

(*a*) Free choice of physician and fee-for service system
(*b*) A salaried system rotating or fixed according to circumstances
(*c*) A rotating panel system
(*d*) Specialists' services and hospital care according to approved local practices

The local plan in New York state may provide for all forms of medical care including—*regardless of the extent of state participation*

* 1940.

—many or all of the following:

Acute illness, home or office
Ambulance service
Boarding homes for invalids
Chronic illness, home, office, etc.
Clinic care, by referral
Consultant services
Dental care, including
  Prophylaxis
  Treatment
  Fillings
  Extractions
  Dental surgery
  Dentures
Drugs, serums, etc.
Eye examinations
Eyeglasses and glass eyes
Fractures
Hospital care
Laboratory services
Major surgery, home or hospital
Medical services in hospital
Minor surgery
Nursing care, including
  Visiting nurse, per visit
  Registered nurse, per day
  Practical nurse, per day
  Home medical aids
Nursing-home care
Obstetrics, home or hospital
Physiotherapy
Pnuemonia treatment
Preventive services, by referral
Prosthetic or surgical appliances
Radium treatment
Sickroom supplies
Specialist services
Tuberculosis treatment, home
Venereal disease treatment
X-ray diagnosis
X-ray treatment

We recommend to all who are interested in the medical care aspects of social security the method of procedure followed in the State of New York[5] so clearly set forth by Mr. Dowling; namely building from the ground up, not from the top down. The method has this advantage: it works with a minimum of bureaucratic control; it is founded on well-understood principles; it works in times of peace; it does not require a state of war to assure its continuance; it operates within the framework of reality as a partnership; it "indicates that the medical profession can work with government agencies without surrendering its own freedom of action or lowering its standard of service. . . . . It may avert the evils of state medicine."[7]

Editorial, *N. Y. St. J. M.*, Jan. 15, 1943.

1. First District Branch Meeting, Oct. 7, 1942.
2. Proverbs 9: 18.
3. New York State J. Med. 43: No. 1: 25 (Jan. 1) 1943.
4. New York Times, Dec. 7, 1942.
5. New York State J. Med. 42: No. 9: 904 ff. (May 1) 1942.
6. Under Section 184, Social Welfare Law, State of New York.
7. New York State J. Med. 42: No. 22: 2100 (Nov. 15) 1942.

Editorial

DELAWARE STATE MEDICAL JOURNAL

Owned and published by the Medical Society of Delaware, a scientific society, non-profit corporation. Issued about the twentieth of each month under the supervision of the Publication Committee.

W. EDWIN BIRD, M. D. ..... Editor
618 Citizens Bank Building

W. OSCAR LA MOTTE, M. D. ..... Associate Editor
Medical Arts Building

M. A. TARUMIANZ, M. D. ..... Associate Editor & Bus. Mgr.
618 Citizens Bank Building

Telephone: Wilmington 3-4366

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Subscription price: $2.00 per annum, in advance. Single copies, 20 cents. Foreign countries: $2.50 per annum.

Vol. 15 JANUARY, 1943 No. 1

AIR RAID DRILLS: A QUERY

During blackout drills, emergency motor vehicles, properly identified as such, are permitted to move under stringent regulations. Both the permission and the regulation are proper, and under both the physician can continue his services to the public.

During air raid drills, however, whether they come during the day or the night, only military, defense, police, or emergency repair vehicles can move. The physician, like the public he serves, is immobilized till the all-clear is sounded. Just how, in an honest-to-God blitz, the physician, who alone may be able to save life in such an emergency, is to function deponent sayeth not. The only balm here is the fact that we do not look for a sustained blitz—enemy actions must, perforce, be limited to rather short hit and run affairs. The sad part about such affairs is that the experience abroad has been that civilian rather than military damage results. Long or short though the affair may be, the physician is immobilized.

Passing from the life risk to the business loss risk, we have been asked by several of our confreres how a physician—or a layman—can catch a train or a plane if an air raid drill comes along just as he is about to leave home for the train. We refer, of course, to long distance trips, say Chicago or California on important business, where through reservations must be made days and sometimes weeks in advance. The train will not wait, and the traveler, immobilized, misses it and also its farther connections, thereby sustaining a business loss. Who pays for this loss?

To our non-legal mind it seems that a distinction must be made between the drills *ordered* by the military command, and the drills *permitted* by the command, on application of the local OCD. In the former, we doubt if any redress for loss could be had; in the latter we believe redress would be possible, though it would probably involve expensive legal procedures. We recently put this query to Mr. Edwin F. Koester, the Wilmington coordinator of the OCD, who preferred to make no statement on the question of redress for loss under such circumstances.

Mr. Koester did, however, make some helpful comments. He informed us that, in Wilmington, at least, the air raid drills would be publicized (1) to the extent that we would know within what dates a surprise drill would be held; and (2) they would be short—20 to 30 minutes only. His advice to all persons with distant, important or expensive travel reservations is, within those dates, to allow the usual time to get from home to the station plus one-half to three-quarters of an hour extra. This makes sense, even though it also makes inconvenience; it is better to waste an hour in the station than miss your train, miss also your far-western connections, and perhaps sustain a substantial business loss.

The main question, however, as to who pays for a loss sustained as a result of a *practice* drill, remains unanswered, though an authoritative answer should be forthcoming.

P. & A. S.

"It is of the utmost importance that the Procurement and Assignment Service for Physicians, Dentists, and Veterinarians, immediately has the name of any doctor who really is willing to be dislocated for service, either in industry or in over-populated areas, and who has not been declared essential to his present locality. This is necessary if the medical profession is to be able to meet these needs adequately and promptly. We urgently request that any physician over the age of 45 who wishes to participate in the war effort send in his name to the State Chairman for the Procurement and Assignment Service in his State."

Sincerely yours,

FRANK H. LAHEY, M. D.,
Chairman, Directing Board,
Procurement and Assignment Service for Physicians, Dentists, and Veterinarians.

Plasma For Civilian Defense

The Medical Division of the Office of Civilian Defense and the United States Public Health Service report the current status of the blood plasma program which was initiated in the early spring.

The report indicates that 130 hospitals have now received grants-in-aid and are preparing reserves of plasma to total at least 63,130 units. In addition to this reserve, 27,500 units of frozen plasma have been obtained through the Army and Navy from blood collected by the American Red Cross. This supply has been distributed. The Medical Division has also procured 37,500 units of dried plasma from blood collected by the American Red Cross, and this supply is in process of distribution.

The total reserve, which is largely concentrated in the 300-mile coastal target areas, will be 126,630 units for treatment of casualties resulting from enemy action. In addition, 1,250 units are in Puerto Rico and 250 in Alaska.

In addition to these sources of plasma, the Red Cross is distributing to target areas 5,000 units which will be available to the Office of Civilian Defense for treatment of civilian casualties resulting from enemy action. Many hospitals which have not received grants under the OCD-USPHS program are also preparing plasma reserves which total approximately 50,000 units.

Plasma required for the treatment of war-related injuries may be obtained by any community through its Chief of Emergency Medical Service. To meet such emergencies, plasma may be transferred: (1) within a State by the State Chief of Emergency Medical Service; (2) within a Region, by the Regional Medical Officer; and (3) from one Region to another by the Medical Division, U. S. Office of Civilian Defense. Following is the most recent statement of the amounts of plasma available in each Civilian Defense Region:

Region II (New York, New Jersey, Delaware)

In preparation:

19,080 units in 33 Grantee Hospitals
7,500 units of Dried Plasma

Distributed:

6,000 units of Frozen Plasma

32,580 Total Units

Ed. Note—See previous report, this Journal, October, 1942, page 212.)

New Journal Coming

The American Gastroenterological Association on January 1, 1943, published the first issue of a new Journal called Gastroenterology. The new Journal is owned by the Association, will be the official publication of the Association, and will be published by Williams and Wilkins Company. It will appear monthly, and the subscription price will be $6.00 per year.

Dr. W. C. Alvarez will be the Editor (after June, 1943) and Dr. A. C. Ivy will be the Assistant Editor. The Editorial Board will consist of Doctors A. H. Aaron (Buffalo), J. A. Bargen (Rochester), H. L. Bockus (Philadelphia), W. C. Boeck (Los Angeles), B. B. Crohn (New York), R. Elman (St. Louis), F. Hollander (New York), Sara Jordan (Boston), J. L. Kantor (New York), B. R. Kirklin (Rochester), P. Klemperer (New York), F. H. Lahey (Boston), F. C. Mann (Rochester), H. J. Moersch (Rochester), V. C. Myers (Cleveland), W. L. Palmer (Chicago), J. M.

Ruffin (Durham), R. Schindler (Chicago), and R. L. Wilbur (San Francisco).

Gastroenterology invites for publication clinical and investigative contributions which are of interest to the general practitioner as well as the specialist and which deal with the diseases of digestion and nutrition, including their physiological, biochemical, pathological, parasitological, radiological, and surgical aspects.

Manuscripts should be sent to Dr. A. C. Ivy, Gastroenterology, 303 East Chicago Avenue, Chicago, Illinois. Letters regarding subscriptions and business matters should be addressed to Mr. R. S. Gill, Williams and Wilkins Company, Baltimore, Maryland.

NO EVIDENCE OF MEDICAL SERVICE BREAKDOWN

"Fears of a breakdown in American medical and public health services are unwarranted by any evidence now available," Morris Fishbein, M. D., Chicago, declares in a signed editorial in the January issue of *Hygeia, The Health Magazine*. "Far more serious," he continues, "is the attempt to create such fears as a basis for political intrigues or manipulations for political power. That is a dangerous threat to national morale and public health.

"Public attention has been focused on the health of our people by the innumerable investigations of medical manpower. Fortunately the health of our people is now the best that it has been in our history. Unless some epidemic, like that of 1918, should sweep the world, these excellent conditions should continue to prevail. Already evidence is apparent that two conditions—tuberculosis and venereal diseases—are increasing in their prevalence—greatly in other countries, somewhat in the United States. Fortunately again for us, our public health authorities and our doctors are aware of these menaces to our health; measures are already in force to curb such increases as much as possible. . . . In the great campaign against venereal diseases, the combined efforts of the military and civilian authorities and the opening of new institutions for the compulsory detention and treatment of those who spread venereal diseases are having a most beneficial effect.

"Wars bring about movement of great numbers of people; overcrowding—difficulty in control of food and water supplies; inadequate disposal of sewage; relaxation of controls over insect and rodent pests; these and many similar factors, including shortage of drugs and various medical supplies, may predispose to the spread of diseases. The usual infections such as pneumonia, scarlet fever, diphtheria and meningitis may increase in their prevalence. Unusual conditions such as virus pneumonitis, virus conjunctivitis and various dysenteries increase in their incidence. The threat of plague, typhus, malaria and similar exotic conditions must be detected and combated. The Army and Navy Medical Departments are aware of the situation. Civilian physicians are ready to do their part. Public cooperation in utilization of medical personnel and facilities will do much to effect more efficient control.

"Even before our entrance into the world conflict, the American medical profession and the people they serve had begun a series of important experiments to secure a wide distribution of the services of the medical profession and the hospitals. Steady progress has been made by the extension of prepayment hospitalization plans to cover some fifteen million people. More than 25 per cent of state medical societies and hundreds of county medical societies are operating medical service plans for persons in low income groups. The Farm Security Administration has a plan for medical care which covers 105,000 farm families. The plan in each county has been reached by agreement between local physicians and representatives of the government. Moreover . . . the funds made available through the Social Security Act have vastly expanded public health programs in rural areas. Thus we have pro-

gressed without regimenting the people, the physicians, or the hospitals of the United States in a politically controlled bureaucracy.

"A few comments by Peter Edson, Washington correspondent of Newspaper Enterprise Association, are pertinent to the current situation on distribution of doctors. Says Mr. Edson:

"In all the screaming about doctor shortages here and there since the war got going, a lot of hypochondriacs who threw tantrums and tears into their telephones if the doc didn't dash right over have completely forgotten what the medical situation in the country was in peace times. . . . During the depression a lot of people were going without doctors because they didn't have the money to pay the bills. Now that they have more money, many are catching up with their doctoring, and that puts a further strain on doctors. Also, people weren't having babies much in the depression years. Now they are."

"Again fortunately for the United States, the American medical profession began to plan in June, 1940, for the emergency. Doctors are being rationed even more scientifically than are gasoline, fuel and tires, far more scientifically than are the members of other professions and trades. The Procurement and Assignment Service for Physicians, Dentists and Veterinarians merits the confidence and help of industrial leaders, public health and social service workers in allocating physicians in areas where there are apparent shortages."

BOOK REVIEWS

Military Medical Manuals——Manual of Dermatology. Issued under the auspices of the Committee on Medicine of the Division of Medical Sciences of the National Research Council by Donald M. Pillsbury, M. D.; Marion B. Sulzberger, M. D.; Clarence S. Livingood, M. D. Pp. 421, with 109 illustrations. Cloth. Price, $2.00. Philadelphia: W. B. Saunders Company, 1942.

This volume is the first of the Medical Manuals, (mates of the six Surgical Manuals, three of which have already appeared, also by Saunders) that standardize the treatments to be given in the services. Dermatology was published first because a concise, accurate text was not available elsewhere, and because, surprising as it is, skin lesions account for approximately ten per cent of the days lost through sickness. Rare and obscure diseases are not discussed; diagnostic proceedings are simple; therapeutic measures are time-tested. The text is "meaty," the illustrations excellent. An appendix contains a formulary of 82 preparations. After the war we believe this book will find a large circulation in civil practice.

New and Nonofficial Remedies, 1942, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1942. Pp. 671. Cloth. Price, $1.50. Chicago: American Medical Association, 1942.

Perhaps the most important feature of this new volume of New and Nonofficial Remedies is the radical rearrangement it has undergone, which it is believed will make the contents more accessible and therefore more valuable to the physician or other interested readers. Heretofore, the classification of products has been basically that of chemical relationship—the new arrangement is primarily according to therapeutic use, chemical classification being introduced by means of subheadings. In addition, the typographic style has been changed so as to give greater prominence to the products of individual manufacturers. No valuable feature has been sacrificed. The book still fulfills its function of establishing chemical standards for new and nonofficial preparations which the Council has found to be useful or to give adequate promise of usefulness in the treatment or prevention of disease. Its function as a guide to the most recent advances in therapeutics has been greately enhanced.

Careful examination of the general discussions under the various headings and subheadings shows that the Council has admirably performed its annual task of keeping cine. The authoritative and compendious section of the sulfonamide derivatives is an outstanding example. So also is the chapter Vitamins and Vitamin Preparations for Prophylactic and Therapeutic Use. Equally im-

portant though less extensive revisions have been made in such sections as Aluminum Compounds, Dextrose, Gonadotropic Substances, Liver and Stomach Preparations, Ovaries, Parathyroid, Pituitary, and Testes.

Among the newly accepted drugs are: Acetyl-Beta-Methylcholine and the proprietary brand, Mecholyl Chloride, proposed for use by iontophoresis, orally and subcutaneously as a parasympathetic stimulant; Adrenal Cortex Extract for parenteral use in the treatment of Addison's disease or of adrenal insufficiency of other types as well as prophylactically in surgical procedures involving the adrenal cortex; Aluminum Hydroxide Gel with the proprietary brand, Creamalin, for oral use as an adjunct in the treatment of peptic (gastric and duodenal ulcer; and Normal Human Serum and Normal Human Plasma.

Others worthy of mention are: Cyclopropane, another general anesthetic, now included in the U. S. P.; Amylcaine Hydrocloride, another proprietary local anesthetic and Pernoston Sodium, the sodium salt of the previously accepted proprietary barbital derivative, Pernoston.

The indices of the new volume of New and Nonofficial Remedies are of the same order and plan as in previous editions. A general index lists accepted articles, including those not described. This is followed by an index to distributors in which appear all the Council accepted articles listed under their respective manufacturers. Finally, a bibliographical index is added for listing proprietary and unofficial articles not included in N. N. R. This includes references to the Council publications concerning each such article as has appeared in The Journal of the A. M. A. Reports of the Council on Pharmacy and Chemistry, Propaganda for Reform, Vol. 1 and 2, or Reports of the A. M. A. Chemical Laboratory.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1941, with the comments that have appeared in the Journal. Pp. 187. Cloth. Price, $1. Chicago: American Medical Association, 1942.

The Council on Pharmacy and Chemistry recently issued the thirty-third edition of the Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association. This volume contains in compact form not only the reports of the Council which have been publisched in the Journal during the past year but also some additional reports which were not considered of sufficient importance to be published in The Journal. The reports may be divided into four classes: reports rejecting products as not being acceptable for inclusion in New and Nonofficial Remedies; reports omitting from New and Nonofficial Remedies products that have previously been accepted; reports on the nomenclature of various substances; and reports in which the Council gives decisions of general interest or summarizes the latest scientific knowledge concerning certain topics. The last classification includes the largest number of reports. One article deals with the developments in bacteriophage therapy since the previous report of the Council in 1934. Other reports bring to the present day the status of such products as aluminum hydroxide preparations, antipneumococcic serums, cyclopropane, human blood plasma and serum, human convalescent poliomyelitis serum, human convalescent mumps serum and sudfadiazine. Such topics as ion transfer (iontophoresis), halogenated vegetable oils for bronchography and the problem of lipid pneumonia and the sympathomimetic amines as epinephrine substitutes are discussed. The nomenclature reports deal for the most part with the Council's adoption of nonproprietary designations for comparatively new products such as diethylstilbestrol, menadione, and sulfadiazine. Explanations are given for the omission at this time of products which have previously been included in New and Nonofficial Remedies. In most cases the N. N. R. description is included in the report as a matter of record. The volume also includes the reports rejecting various products, which have either been submitted by the manufacturer or considered on the Council's own initiative, and which have been found not acceptable for inclusion in New and Nonofficial Remedies. Also incorporated is a brief summary of the decisions arrived at by the Council at its last meeting.

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Board of Directors and Nominating Committee: C. E. Wagner, 1943; B. M. Allen, 1944; W. F. Preston, 1945.

Delegates: 1943: B. M. Allen, L. W. Anderson, T. H. Baker, W. E. Bird, A. L. Heck, C. L. Hudiburg, J. D. Niles, C. E. Wagner, A. J. Strikol. 1944: E. M. Bohan, Ira Burns, J. J. Cassidy, C. H. Davis, L. B. Flinn, P. R. Smith, M. A. Tarumianz, B. S. Vallett, G. W. Vaughan, N. W. Voss

Alternates: 1943: D. D. Burch, I. L. Chipman, D. T. Davidson, J. R. Downes, G. W. K. Forrest, J. W. Kerrigan, W. W. Lattomus, W. L. Lee, C. C. Neese. 1944: Julian Adair, G. J. Boines, J. W. Butler, K. M. Corrin, G. H. Gehrmann, H. W. Gray, J. F. Hynes, E. L. Kreiger, J. C. Pierson, L. J. Rigney.

Board of Censors: E. R. Miller, 1943; W. E. Bird, 1944; L. J. Jones, 1945; L. J. Rigney, 1946; L. B. Flinn, 1947.

Program Committee: C. C. Neese, A. J. Strikol, C. E. Maroney.

Legislative Committee: E. R. Mayerberg, G. H. Gehrmann, D. W. Lewis, M. A. Tarumianz, G. W. Vaughan.

Necrology Committee: Ira Burns, G. J. Boines, E. M. Bohan.

Auditing Committee: Charles Levy, J. J. Cassidy, N. W. Voss.

Public Relations Committee: C. E. Wagner, G. W. K. Forrest, L. J. Jones, J. S. Keyser, A. D. King.

Medical Economics: W. E. Bird, C. H. Davis, Lewis Flinn, L. J. Rigney, P. R. Smith.

KENT COUNTY MEDICAL SOCIETY—1943

W. C. DEAKYNE, *President*, Smyrna.
F. R. EVERETT, *Vice-President*, Dover.
H. W. SMITH, *Secretary-Treasurer*, Harrington.

Delegates: C. J. Prickett, I. J. MacCollum, William Marshall, Jr.

Alternates: Stanley Worden, S. M. D. Marshall, A. V. Gilliland.

Censors: H. V. P. Wilson, H. W. Smith, W. T. Chipman.

DELAWARE ACADEMY OF SOCIETY—1943

Open 10 A. M. to 5 P. M. and Meeting Evenings

W. H. KRAEMER, *President.*
E. R. MILLER, *First Vice-President.*
G. W. K. FORREST, *Second Vice-President.*
D. T. DAVISON, SR., *Secretary.*
J. M. MESSICK, *Treasurer.*

Board of Directors: H. F. du Pont, Mrs. Ernest du Pont, L. B. Flinn, S. D. Townsend, C. M. A. Stine, J. K. Garrigues, W. S. Carpenter, Jr., F. A. Wardenburg.

DELAWARE PHARMACEUTICAL MEDICINE—1943

Honorary Presidents: Walter L. Morgan, Wilmington; George W. Rhodes, Newark; Albert Dougherty, Wilmington.

President: Everett D. Bryan, Dover.

First Vice President: William Earl Hastings, Selbyville.

Second Vice-President: G. Medford Sparks, Clayton.

Third Vice-President: C. Emerson Johnson, Newark.

Secretary: Albert Bunin, Wilmington.

Treasurer: Albert Dougherty, Wilmington.

Board of Directors: P. C. Tigue, E. D. Bryan, W. E. Brown, H. P. Jones, **H. E. Culver.**

SUSSEX COUNTY MEDICAL SOCIETY—1943

N. R. WASHBURN, *President*, Milford.
H. S. RIGGIN, *Vice-President*, Seaford.
A. H. WILLIAMS, *Secretary-Treasurer*, Laurel.

Delegates: A. H. Williams, H. S. Riggin, C. C. Fooks, J. B. Waples, Jr.

Alternates: E. L. Stambaugh, L. L. Fitchett, J. L. Fox and S. M. Berger.

Censors: O. V. James, J. R. Elliott, U. W. Hocker.

DELAWARE STATE DENTAL SOCIETY—1943

J. A. CASEY, *President*, Wilmington.
P. K. MUSSELMAN, *First Vice-Pres.*, Wilmington.
MORRIS GREENSTEIN, *Second Vice-Pres.*, Wilmington.
C. M. COX, *Secretary*, Newark.
C. F. PIERCE, *Treasurer*, Wilmington.
Delegate to A. D. A.: P. A. Traynor, Wilmington.

DELAWARE STATE BOARD OF HEALTH—1943

Bruce Barnes, M. D., *President*, Seaford; Mrs. F. G. Tallman, *Vice-President*, Wilmington; Mrs. Caroline Hughes, *Secretary*, Middletown; J. D. Niles, M. D., Middletown; W. T. Chipman, M. D., Harrington; W. H. Speer, M. D., Wilmington; W. B. Atkins, D. D. S., Millsboro; Mrs. C. M. Dillon, Wilmington; Edwin Cameron, M. D., *Executive Secretary*, Dover.

MEDICAL COUNCIL OF DELAWARE

Hon. Daniel J. Layton, *President*; J. S. McDaniel, M. D., *Secretary*; A. K. Lotz, M. D.

BOARD OF EXAMINERS, MEDICAL SOCIETY OF DELAWARE

J. S. McDaniel, *President and Secretary*; Wm. Marshall, *Assistant Secretary*; W. E. Bird, W. T. Chipman, P. R. Smith.